



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/506,530	12/22/2004	Norikazu Komada	2004-1372a	8691
513	7590	12/09/2009	EXAMINER	
WENDEROTH, LIND & PONACK, L.L.P.			LEE, CYNTHIA K	
1030 15th Street, N.W.,			ART UNIT	PAPER NUMBER
Suite 400 East			1795	
Washington, DC 20005-1503				
MAIL DATE		DELIVERY MODE		
12/09/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/506,530	KOMADA ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	CYNTHIA LEE	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 05 August 2009.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-40 is/are pending in the application.  
 4a) Of the above claim(s) 3,5,6,14,15,21,23,24,27,29,33,35 and 36 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1,2,4,7-13,16-20,22,25,26,28,30-32 and 34-40 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|  | 6) <input type="checkbox"/> Other: _____ .                        |

***Response to Arguments***

This Office Action is responsive to arguments filed on 8/5/2009. Claims 1-40 are pending. Claims 3,5,6,14,15,21,23,24,27,29,33,35,36 are withdrawn from further consideration as being drawn to a non-elected invention. Applicant's arguments have been considered and are not persuasive. Claims 1, 2, 4, 7-13, 16-20,22,25,26,28, 30-32, 34,37-40 are non-finally rejected for reasons stated herein below.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 2, 4, 7-13, 16-20,22,25,26,28, 30-32, 34,37-40 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The limitation "completely filled" is not supported by the disclosure as originally filed.

It is noted that the Specification states that the pores are filled, but not completely filled. The Examiner notes that the pores cannot be completely filled because the reactant gas travels through the pores of the electrode to the electrolyte.

Applicant is required to cancel the new matter in reply to this Office Action.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1,2,4,7-13, 16-20,22,25,26,28, 30-32, 34,37-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komada (JP 2000-200614) in view of Wallin (US 5670270).

Komada discloses an electrode of a solid oxide fuel cell wherein the electrode comprises a skeleton constituted of a porous sintered compact having a three dimensional network structure, the porous sintered compact being made of an oxide ion conducting material and/or a mixed oxide ion conducting material; grains made of an electron conducting material and/or a mixed oxide ion conducting material are adhered onto the surface of said skeleton; and said grains are baked inside the voids of said porous sintered compact under the conditions such that the grains are filled inside the voids (Komada's claim 1).

The electrode wherein said porous sintered compact is made of a material which has a composition represented by the following formula  $\text{Ln}(1-x)\text{AxGalyzBlyB2zO3}$  (see Komada's claim 2)

Regarding claim 7, The electrode of a solid oxide fuel cell wherein said grains are made of at least one selected from a group of the materials based on LaMnO<sub>3</sub>, LaCoO<sub>3</sub>, SmCoO<sub>3</sub> and a PrCoO<sub>3</sub>, and the electrode is an air electrode (Komada's claim 7).

Regarding claim 8, An electrode/electrolyte laminate for a solid oxide fuel cell, wherein the electrode is integrally formed on one surface of an oxide ion conducting, dense solid electrolyte layer (Komada's claim 8).

Regarding claim 9, An electrode/electrolyte laminate for a solid oxide fuel cell, wherein the electrode is integrally formed on both surfaces of an oxide ion conducting, dense solid electrolyte layer (Komada's claim 9).

Regarding claim 10, An electrode/electrolyte laminate for a solid oxide fuel cell, wherein the electrode is integrally formed on one surface of an oxide ion conducting, dense solid electrolyte layer; and the electrode is integrally formed on the other surface of the oxide ion conducting, dense solid electrolyte layer (Komada's claim 10).

Regarding claim 11, The electrode/electrolyte laminate for a solid oxide fuel cell wherein the skeleton of the electrode and the solid electrolyte layer are made of the same material or the same type of material (Komada's claim 11).

Regarding claim 12, A solid oxide fuel cell, wherein the fuel cell comprises an air electrode and/or a fuel electrode each consisting of the electrode according to claim 1 (Komada's claim 12).

The fuel cell of Komada is a laminate because the electrode/electrolyte layers have been sintered [0019].

Komada discloses that the grains are adhered to the surface of the pores, but does not disclose that the grains are filled inside the voids (Applicant's claim 1). Wallin teaches of filling the pores of a solid oxide fuel cell electrode with electrocatalyst, such as PrCo<sub>3</sub> (5:60). The electrocatalyst is present to efficiently promote the desired electrochemical reaction(s) within the electrode (3:55-57). The electrocatalyst is incorporated into the pores by infiltrating the network with a solution or dispersion of an electrocatalyst precursor and heating the infiltrated network under conditions sufficient to form the corresponding electrocatalyst (3:25-30). It would have been obvious to one of ordinary skill in the art at the time the invention was made to disperse the electrolycatalyst particles of Wallin to the pores of Komada to promote the desired electrochemical reactions within the electrode, as taught by Wallin. Wallin teaches that the electrocatalyst promotes electrochemical reactions, thus recognizing that the presence of the electrocatalyst, is a result effective variable. It has been held by the courts that discovering an optimum value or workable ranges of a result-effective variable involves only routine skill in the art, and thus not novel. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). See MPEP 2144.05. It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the electrocatalyst of Wallin to fill the pores of Komada depending on the amount of desired reaction in the electrode.

### ***Response to Arguments***

Applicant's arguments filed 8/5/2009 have been fully considered but they are not persuasive.

*Applicant argues that Wallin does not disclose that this improves thermal shock, which is one of the objectives of the presently claimed invention.*

In response, it is noted that the combination of Komada and Wallin would necessarily improve thermal shock because it is the Examiner's position that all the claim limitations have been met.

*Applicant argues that the result of this process of Wallin is that the pores of the structure will contain the electrocatalyst, but the pores will not be "completely filled" with the electrocatalyst as required in the presently claimed invention. This is because the heating/firing process will evaporate the water from the aqueous solution, leaving only a relatively small residue of the solid electrocatalyst itself contained in the pores.*

The Examiner respectfully disagrees. It is the Examiner's interpretation that the electrocatalyst is "completely" filled because the electocatalyst particles are dispersed throughout the pores.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 1795

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia Lee whose telephone number is 571-272-8699. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Cynthia Lee/  
Examiner, Art Unit 1795

/PATRICK RYAN/  
Supervisory Patent Examiner, Art  
Unit 1795